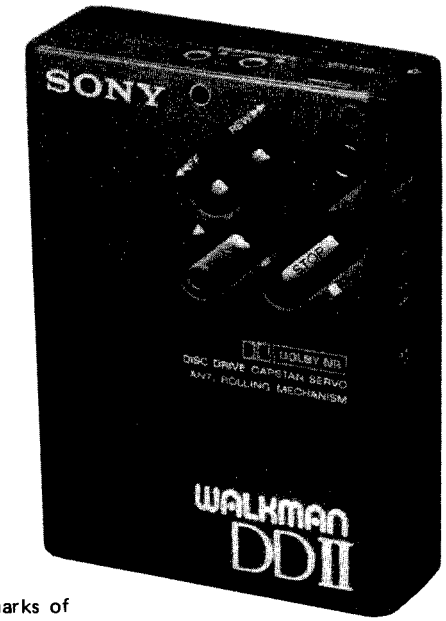
WM-DD II

SERVICE MANUAL

Refer to MDR-15L Service Manual issued previously for information of headphones supplied with this set.

Canadian Model
AEP Model
UK Model
E Model

R21



'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

SPECIFICATIONS

Tape track	4-track 2-channel stereo
Fast winding time	Approx. 2 min. with Sony Cassette C-60
Frequency response	40–15,000 Hz
Wow and flutter	±0.13% (DIN) 0.08% WRMS (NAB)
Power output	Headphones: 20 mW + 20 mW (at 10% harmonic distortion) load impedance 32 ohms at dc operation
Outputs	Two HEADPHONES jacks (stereo minijacks) load impedance 8–300 ohms
Power requirements	3 V dc, two IEC designation R6 batteries (size AA) DC IN 3 V jack accepts: EBP-500 battery case (optional) for use on two IEC designation R20 batteries (size D) AC-37 ac power adaptor (optional) for use on 220V ac, 50 Hz (available in AEP model), or on 240 V ac, 50 Hz (available in UK model) AC-39 ac power adaptor (optional) for use on 120 V ac, 60 Hz (available in Canadian model) AC-38 ac power adaptor (optional) for use on 110, 120, 220 or 240 V ac, 50/60 Hz (available in E model) DCC-70 or DCC-127A car battery cord (optional) for use with 12 V car battery (For connection with the DCC-127A, the optional PC-200 dc plug adaptor is required.)

Tape Transport Mechanism Type	MT-WMDD2-24

Battery life (continuous playback hours)	Approx. 4 hours with supplied Sony SUM-3(NS) New Super batteries Approx. 9 hours with optional Sony Eveready AM3 alkaline batteries For maximum performance we recommend the use of alkaline batteries.
Dimensions	Approx. 79 × 109.2 × 29 mm (w/h/d) ($3\frac{1}{8} \times 4\frac{3}{8} \times 1\frac{3}{16}$ inches) not incl. projecting parts and controls Approx. 79.7 × 110 × 31.1 mm (w/h/d) ($3\frac{1}{4} \times 4\frac{3}{8} \times 1\frac{1}{4}$ inches) incl. projecting parts and controls
Weight	Approx. 290 g (10.3 oz) incl. batteries, not incl. other accessories

FEATURES

- **Disc Drive system** assures accurate and stable tape transport, greatly reducing wow and flutter.
- **Dolby NR (noise reduction) system (B type)** reduces tape hiss noise.
- **Tape selector** for optimum playback with standard tapes as well as high-performance tapes.
- **Two HEADPHONES jacks** allow two persons to listen to tape playback together.
- **Three different power sources:** batteries, house current, and 12 V car battery.

STEREO CASSETTE PLAYER

SONY®

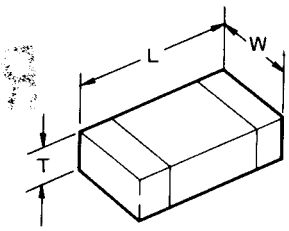
MICROFILM

TC

SERVICING NOTES

Chip components

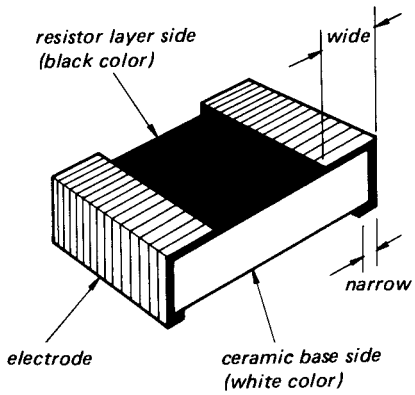
Chip components include resistors, capacitors, transistors, diodes, coil and adjustable resistors.
In this section, the types of resistors, ceramic capacitors, transistors and diodes which are used most frequently will be described.
Dimension of transistors and capacitors



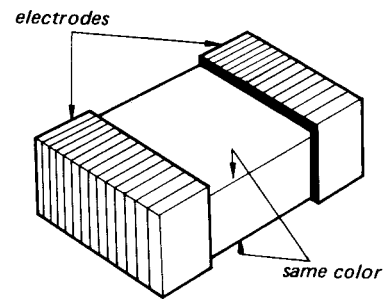
(Unit: mm)

Type	L	W	T
3216	3.2	1.6	0.45 ~ 0.6
2125	2.0	1.25	0.35 ~ 0.5

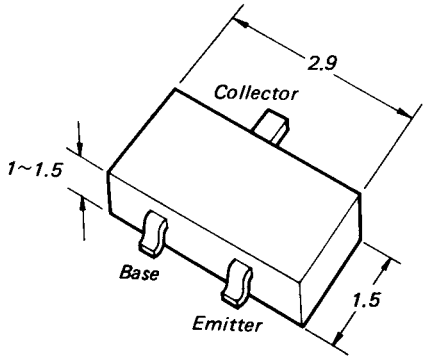
Identification



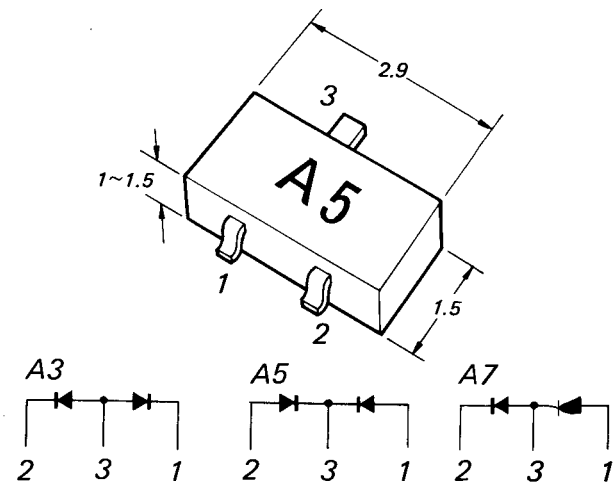
Resistor



Laminated Ceramic Capacitor



Transistor



Diode

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

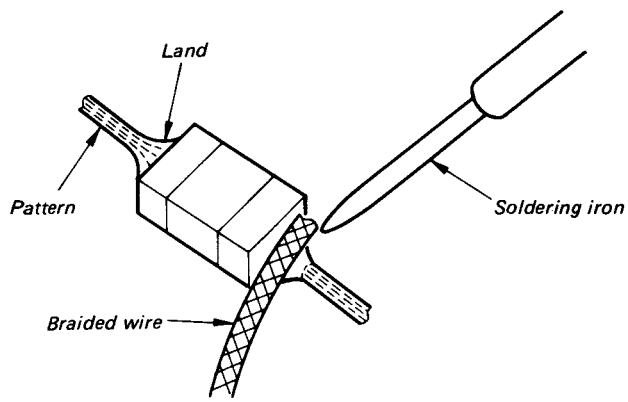
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ **Removing chip components**

(1) Removing solder at electrode

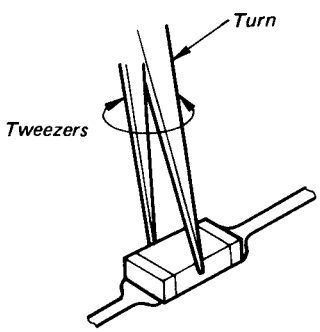
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

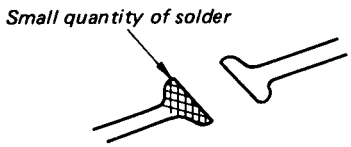
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ **Connecting chip components**

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

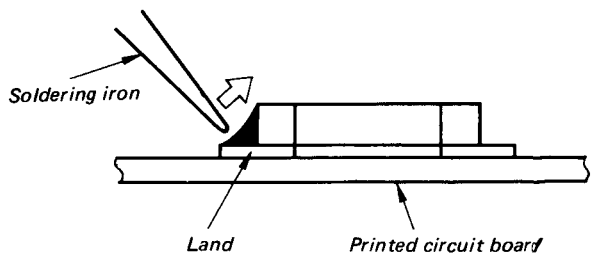
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

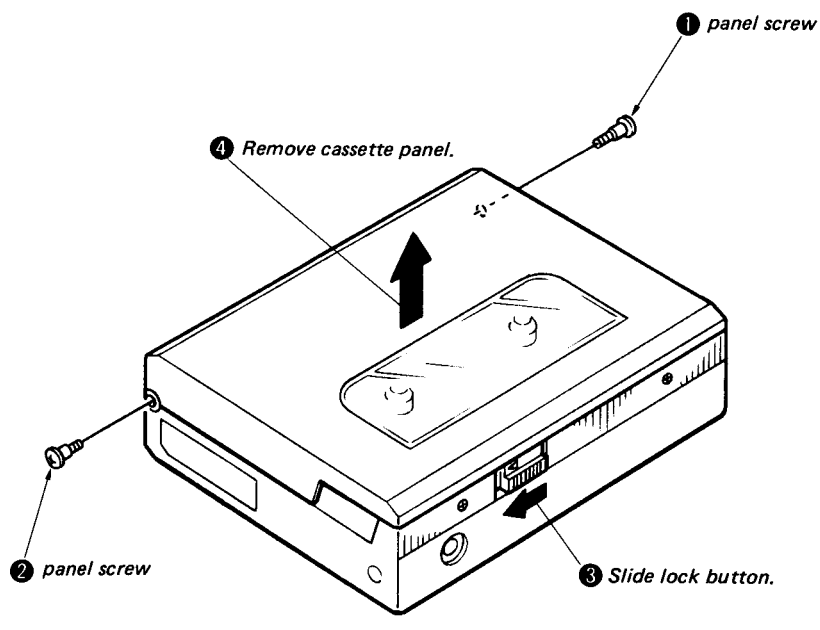
SECTION 1
MECHANICAL OPERATION

MECHANICAL OPERATION in this set is the same as that of model WM-DD, so refer to WM-DD service manual for MECHANICAL OPERATION.

SECTION 2
DISASSEMBLY

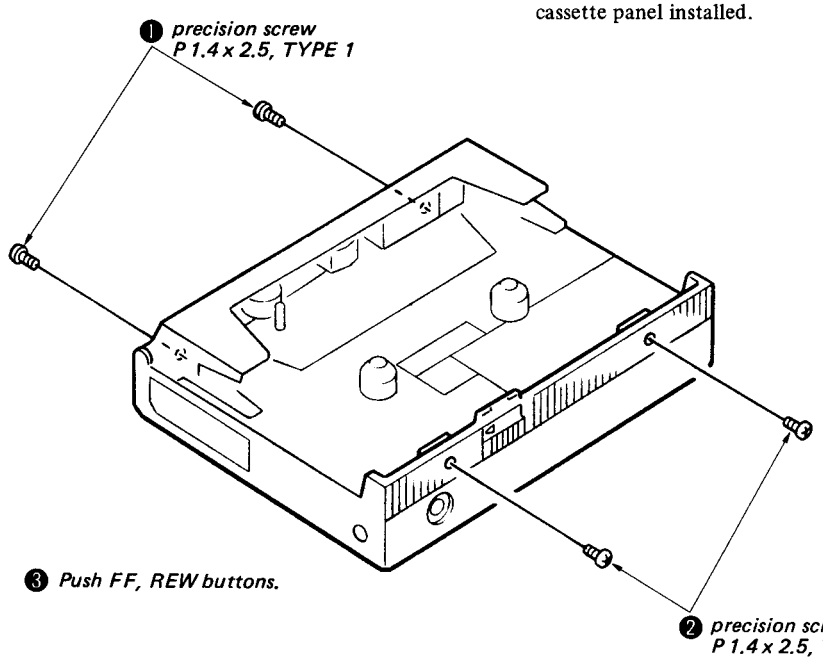
Note: Follow the disassembly procedure in the numerical order given.

Cassette Panel



Control Panel

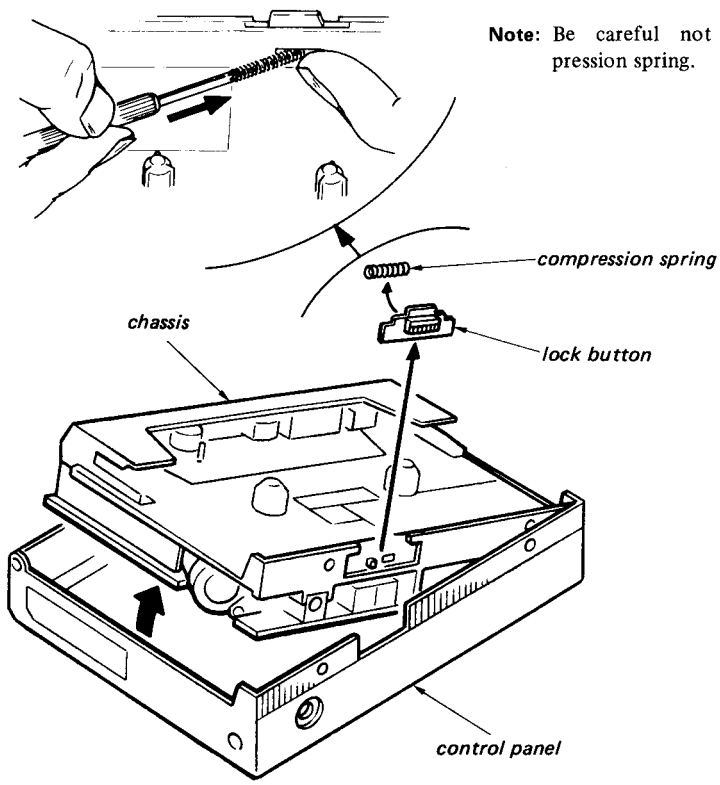
Note: Control panel can be removed with cassette panel installed.



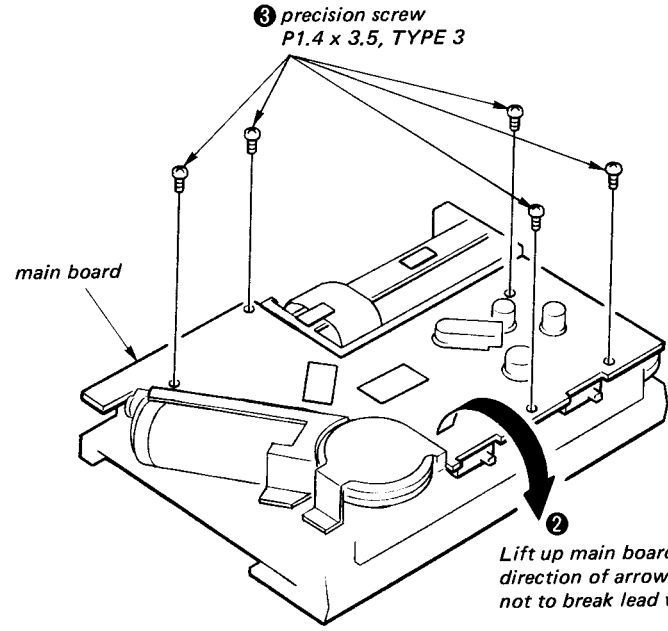
Chassis

(Installing compression spring)

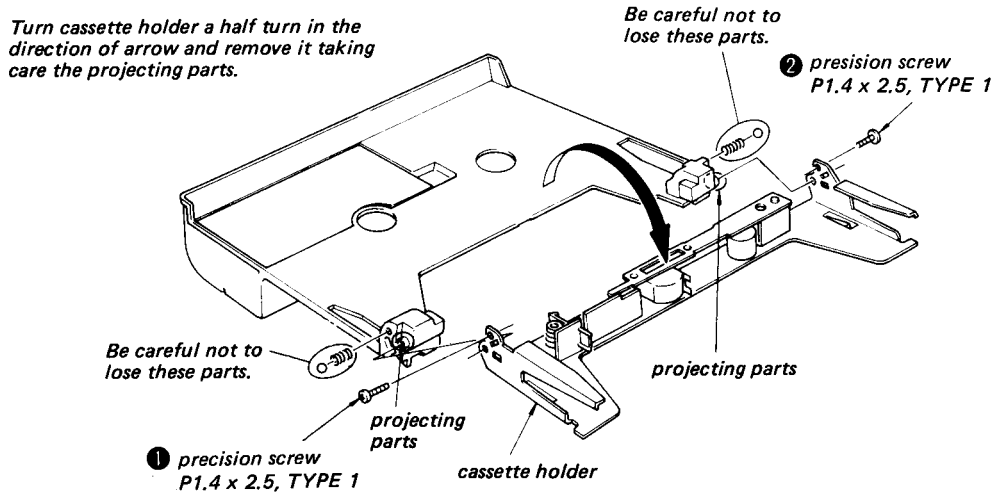
Note: Be careful not to lose compression spring.



Main Board

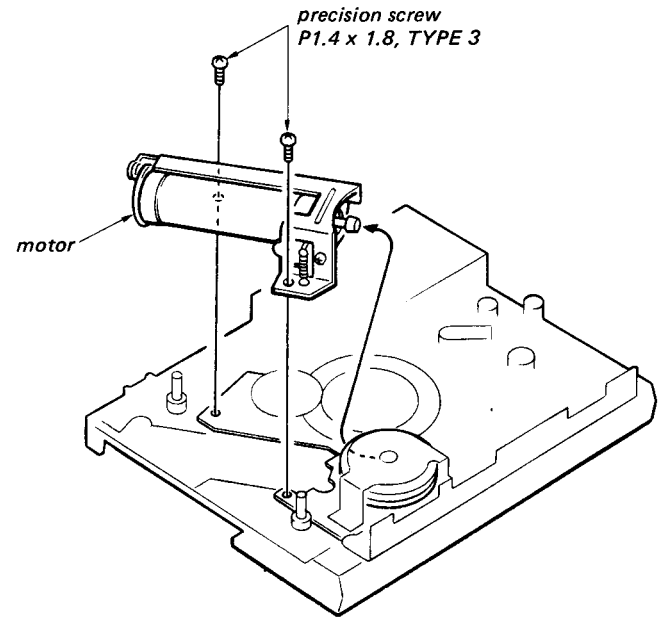

❸ precision screw
P1.4 x 3.5, TYPE 3
main board
❷
Lift up main board in the direction of arrow taking care not to break lead wires.

Cassette holder

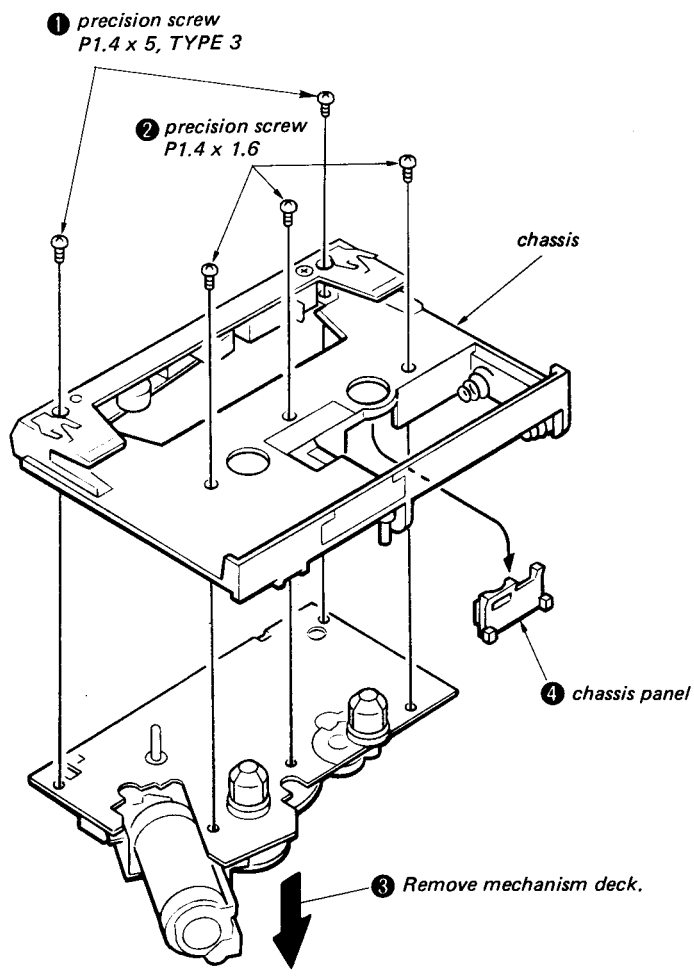

Turn cassette holder a half turn in the direction of arrow and remove it taking care the projecting parts.
Be careful not to lose these parts.
❷ presision screw
P1.4 x 2.5, TYPE 1
Be careful not to lose these parts.
projecting parts
projecting parts
❶ precision screw
P1.4 x 2.5, TYPE 1
cassette holder

Pinch roller and head can be replaced.

Motor



Chassis



SECTION 3
ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

   playback head — pinch roller
   capstan — rubber belts

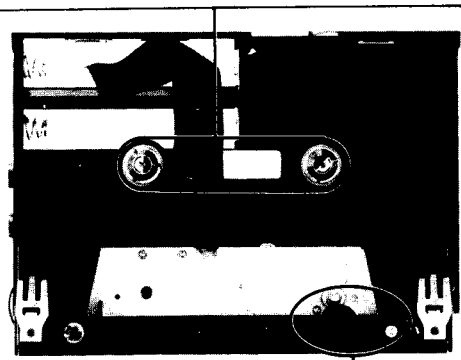
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

3-1. MECHANICAL ADJUSTMENT

Torque Measurement

Perform with 2.5 V DC power.

	Torque meter	Meter reading
FWD	CQ-102C	22 – 46 g·cm (0.3 – 0.63 oz·inch)
FF, REW	CQ-201B	More than 65 g·cm (More than 9.04 oz·inch)
Back Tension	CQ-102C	1 – 3.5 g·cm (0.01 – 0.05 oz·inch)
Tape Pulling Force	CQ-403	More than 80 g·cm (More than 11.12 oz·inch)



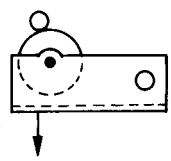
Pinch Roller Pressure Adjustment

– Playback Mode –

1. Pull the spring scale in the direction shown by the arrow.
2. Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating.

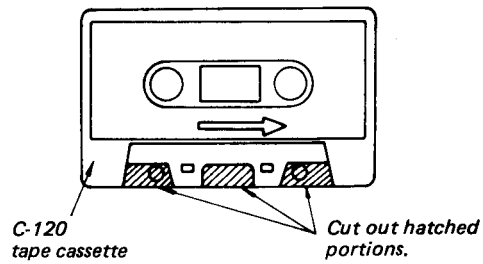
Specification:

170 ± 20 g (5.3 ~ 6.7 oz)

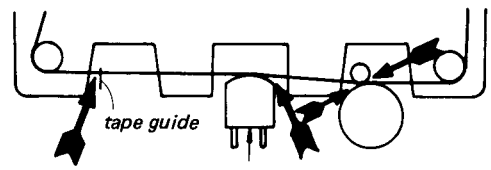


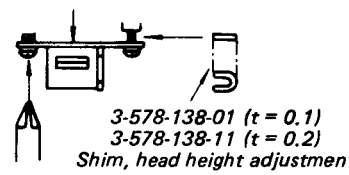
Head Height Adjustment

1. Prepare an adjustment cassette as shown below.

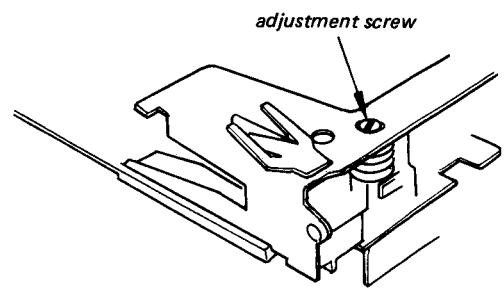


2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by the arrow.



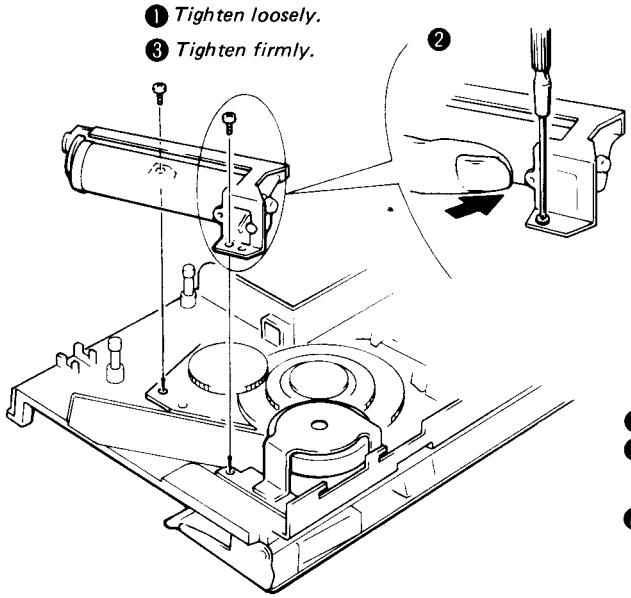


3. If necessary, adjust the height of the tape-guide by turning the adjustment screw.



4. Apply locking compound on adjustment screw.

1. Motor section installation



❶ *Tighten screw loosely.*
❷ *Tighten screw while pressing the motor section lightly in the direction of the arrow.*
❸ *Tighten the screw.*

2. Wow & flutter and motor position

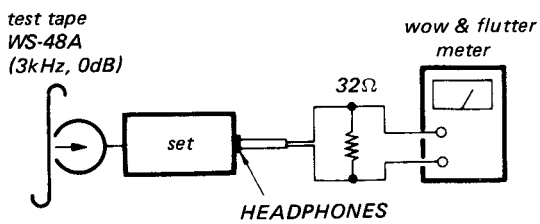
1. Adjust with the adjustment screw so that rotor thrust play is within 0.1mm. (When confirming play, press motor down so that the motor pulley and rotor rubber section do not touch.)
2. Wow & flutter adjustment

Setting:

Power supply voltage: 2.5V
Tape: Adjust by using end portion of tape.
VOLUME control: mechanical mid
TAPE SELECT switch: NORM
DOLBY NR switch: OFF

Procedure:

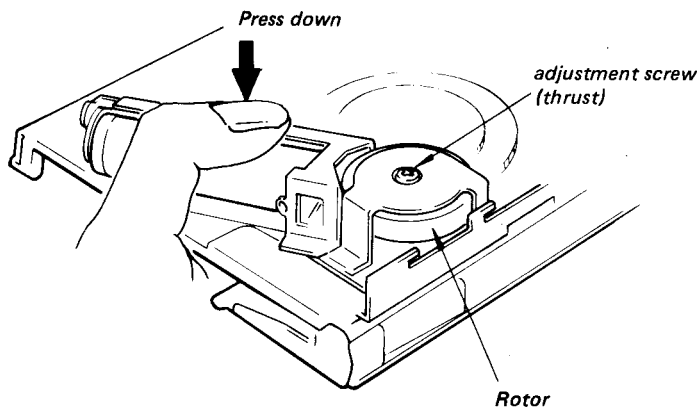
① Mode: playback

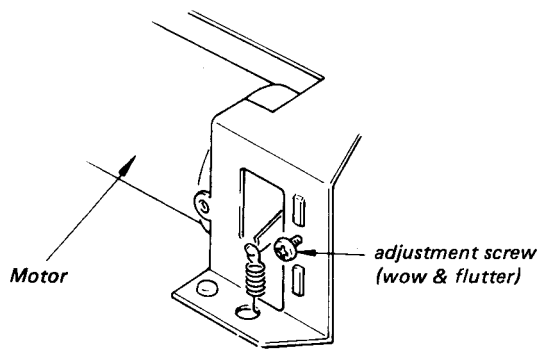


Turn the adjustment screw so that the wow and flutter meter reads minimum (less than 0.12% W·RMS).

② At 2V power supply voltage, confirm normal FWD operation.

③ When ① and ② are not satisfied, repeat adjustment again starting with "Motor Section Installation".





3-2. ELECTRICAL ADJUSTMENTS

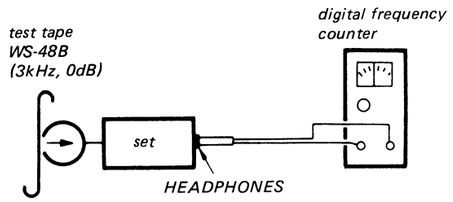
Tape Speed Adjustment

Setting:

VOLUME control: mechanical mid
TAPE SELECT switch: NORM
DOLBY NR switch: OFF

Procedure:

Mode: playback

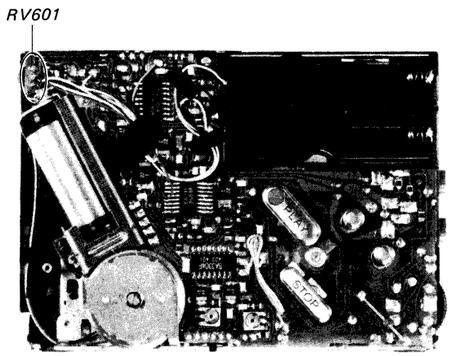


Specification:

Digital frequency counter
2,990 – 3,010Hz

Adjustment Location:

– main board –



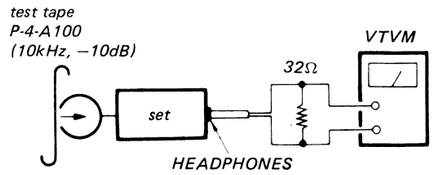
Playback Head Azimuth Adjustment

Setting:

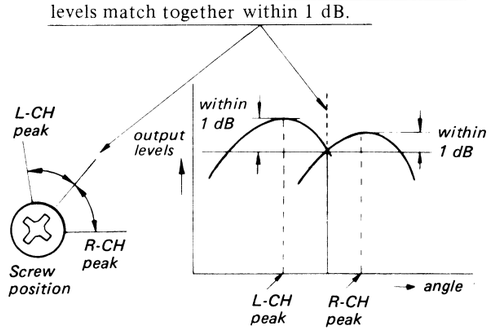
VOLUME control: mechanical mid
TAPE SELECT switch: NORM
DOLBY NR switch: OFF

Procedure:

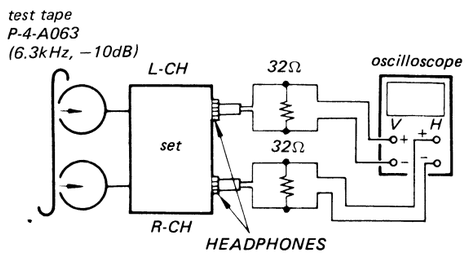
1. Mode: playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.

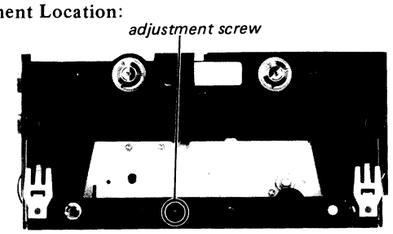


3. Phase Check
Mode: playback



Screen pattern				
in phase	45°	90°	135°	180°
good			wrong	

Adjustment Location:



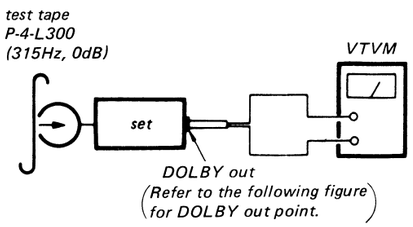
Playback Level Adjustment

Setting:

VOLUME control: mechanical mid
TAPE SELECT switch: NORM
DOLBY NR switch: OFF

Procedure:

Mode: playback



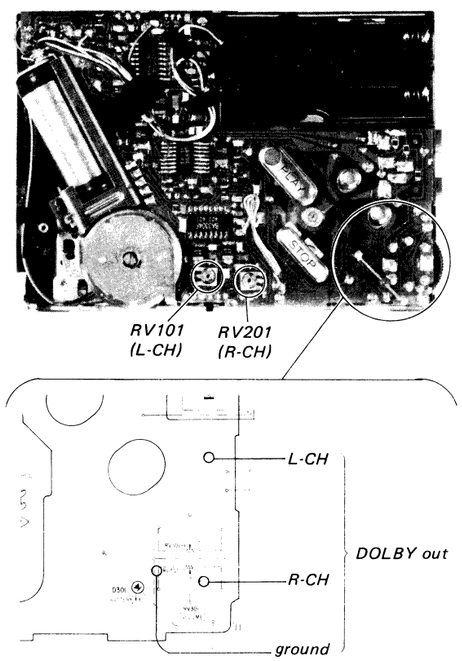
Specification:

DOLBY out level: 0.032V (–27.7 ±0.5dB)

1) If necessary, adjust RV101 (L-CH) and RV201 (R-CH) for the specification.
2) Confirm that the output level of DOLBY out is not changed when repeating playback and stop.

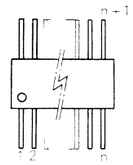
Adjustment Location:

– main board –

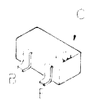


Semiconductor Lead Layouts

BA3304F
CX20084
CX20085
TA7688F

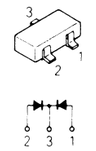


2SA812-M6
2SC1623-L7

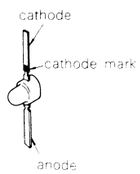


2SB798-DL

1S2837



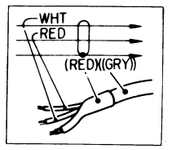
SR506D



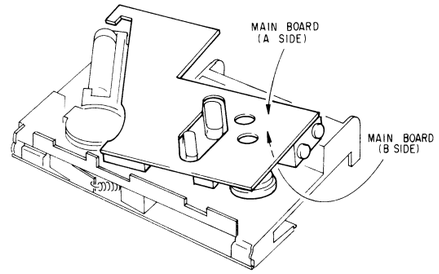
4-1. MOUNTING DIAGRAM

Note:

- Color code of sleeving over the end of the jacket.



- ●—: parts extracted from the conductor side.
- ○-------○ : connected with lead frame (F type).
- ——→—— : signal path
- ——•→—— : L-CH signal path
- ——•→—— : R-CH signal path
- ▒▒▒ : B + pattern



8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

302 303 304 305 302 306 IC601 601 301 IC303 201 101 IC301 Q·IC

302 301 D

A B C D E F G H I J

D]

[MAIN BOARD]
(A SIDE)

DRY BATTERY
SIZE "AA"
(IEC DESIGNATION R6)
2 PCS. 3V

CN301
DC IN 3V

TOTAL CURRENT
FWD: 60mA
FF, REV: 55mA

M901
MOTOR

S901
POWER

IC601

IC303

IC302

IC301

Q304 Q305 Q306 Q303 Q302 Q601 Q301 Q201 Q101

D302

D301
BATTERY

S301
TAPE
METAL
CrO2
NORM

HP901
PLAYBACK HEAD

R-CH
INPUT

L-CH
INPUT

R-CH
OUTPUT

L-CH
OUTPUT

J301-1
A
HEADPHONES
B
J301-2

(MD CHASSIS)

RV301
VOLUME

RV301-1

RV301-2

RV101
4.7k

RV201
4.7k

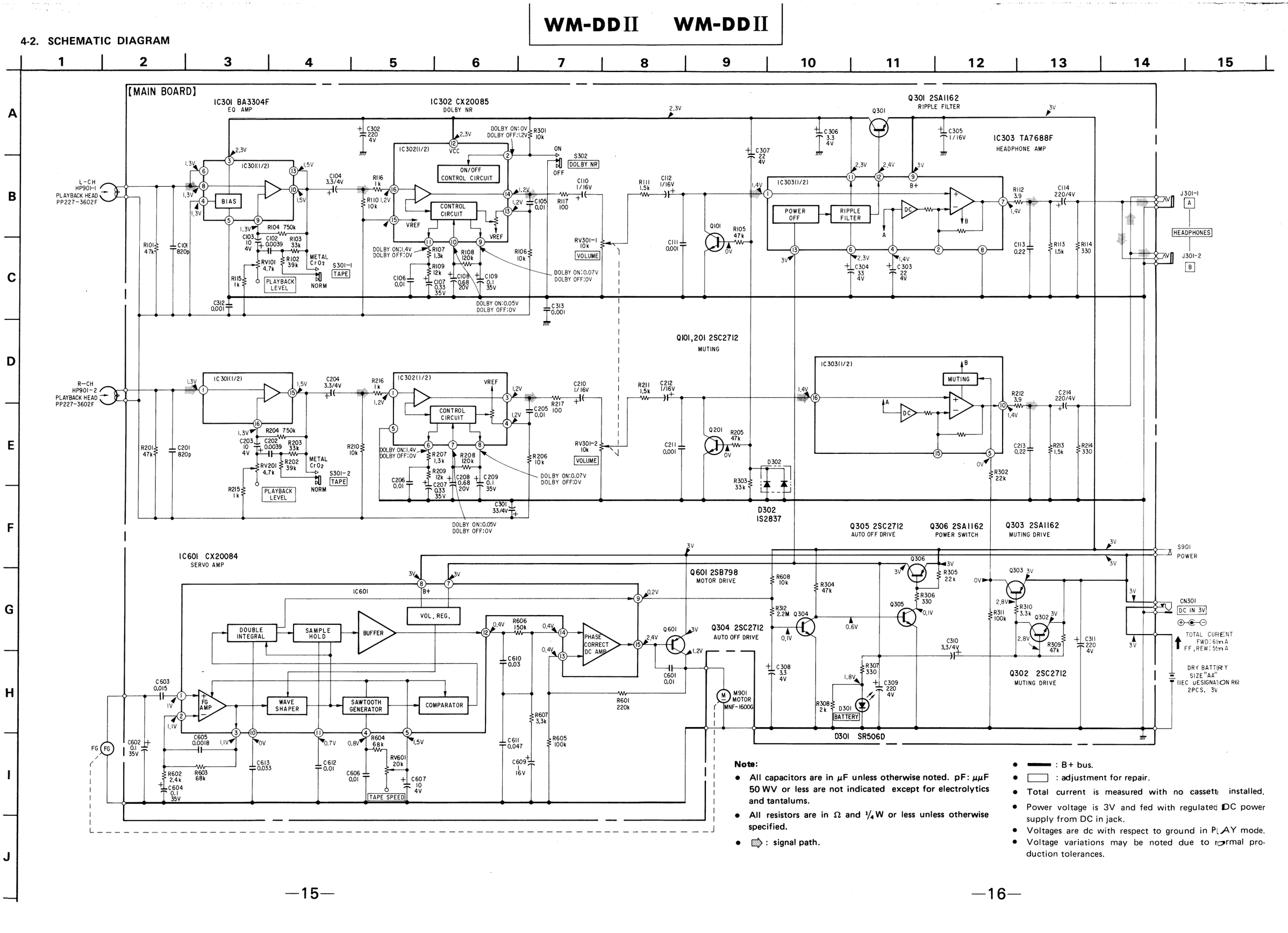
DOLBY ON:0.05V
DOLBY OFF:0V

DOLBY ON:0.07V
DOLBY OFF:0V

DOLBY ON:1.4V
DOLBY OFF:0V

DOLBY ON:0.05V
DOLBY OFF:0V

4-2. SCHEMATIC DIAGRAM

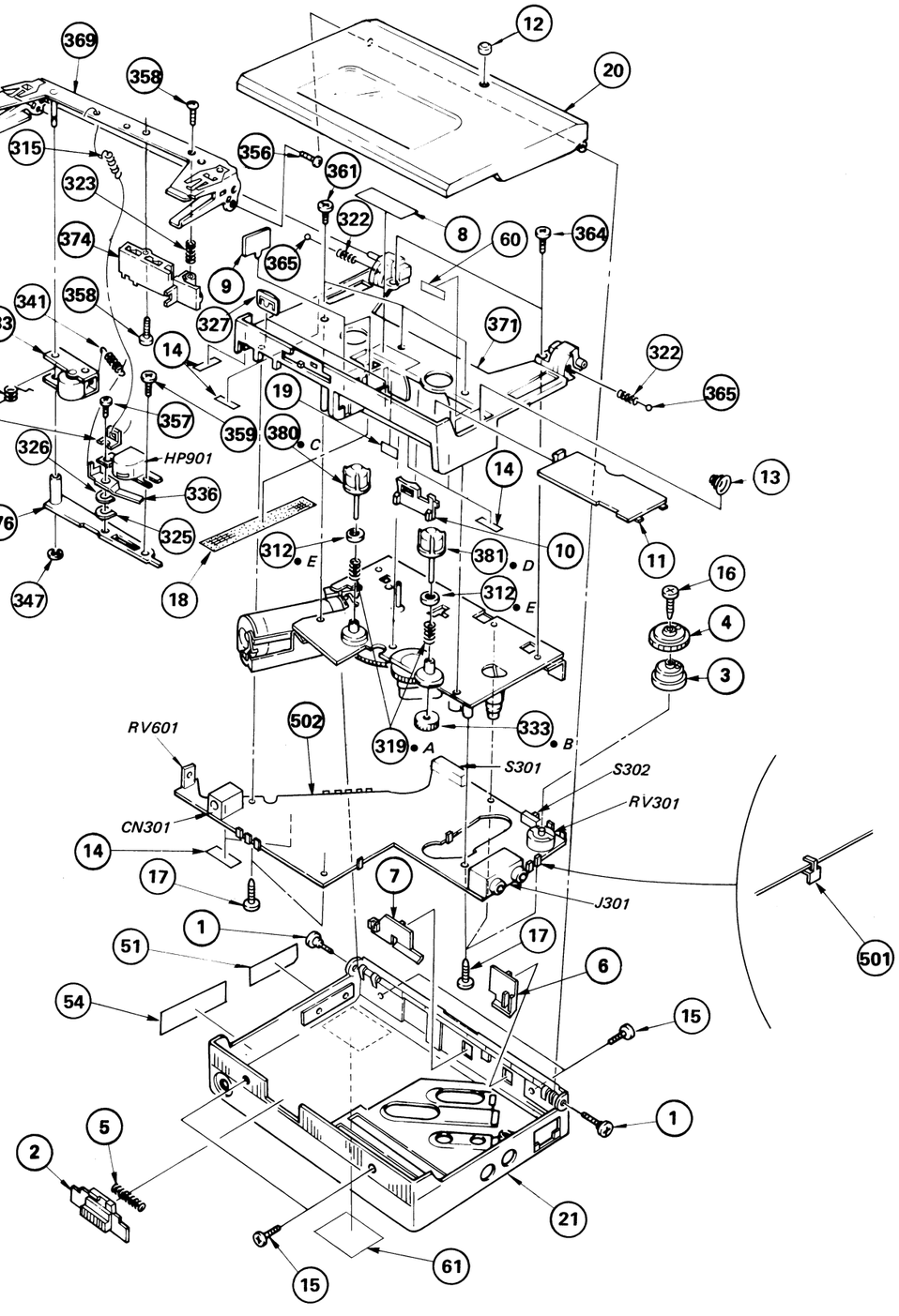


Note:

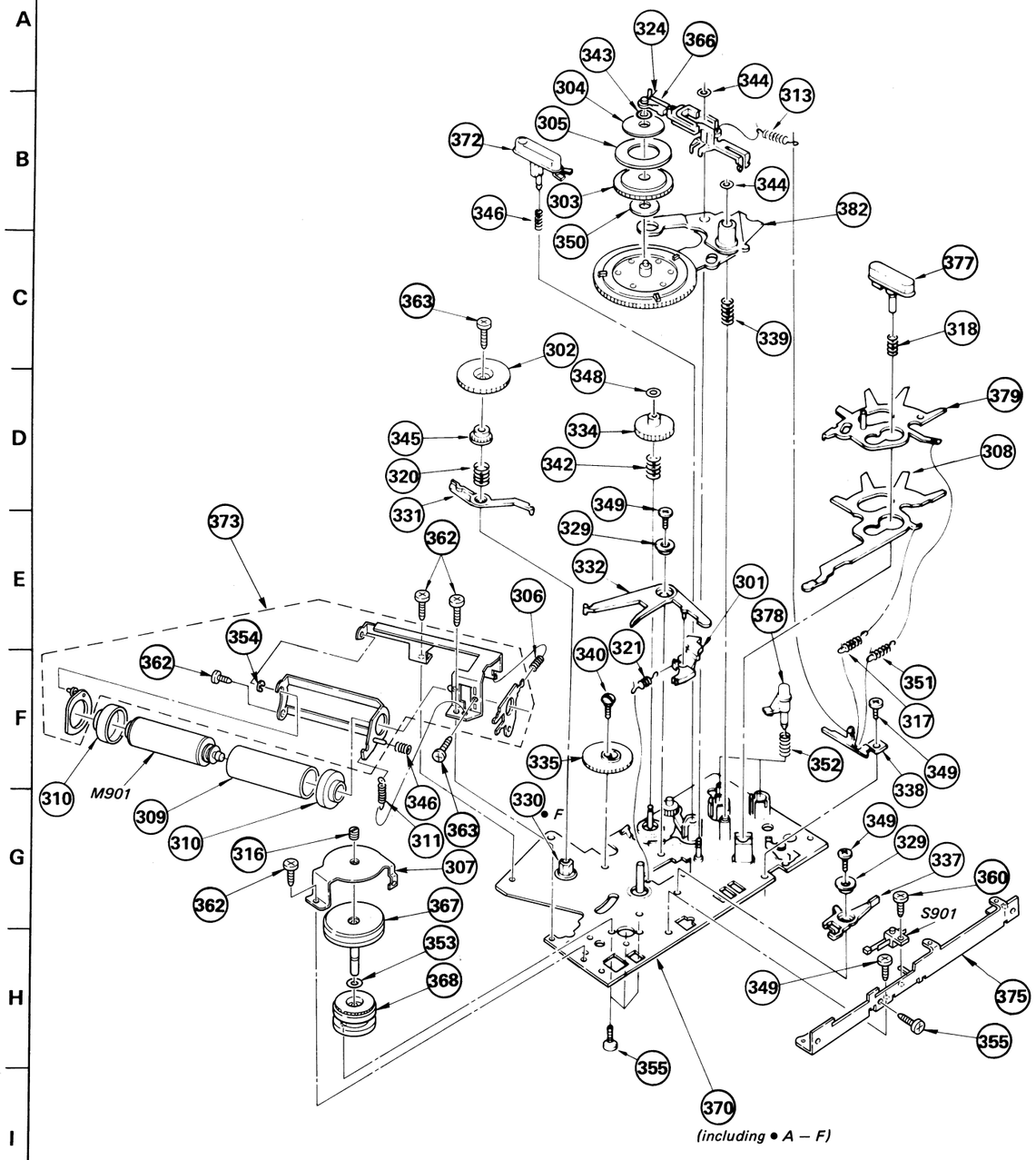
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ⇨ : signal path.
- ▬ : B+ bus.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is 3V and fed with regulated DC power supply from DC in jack.
- Voltages are dc with respect to ground in PLAY mode.
- Voltage variations may be noted due to normal production tolerances.

SECTION 5
EXPLODED VIEWS AND PARTS LIST

5-1.



5-2.



GENERAL SECTION

No.	Part No.	Description
1	3-307-831-00	SCREW, PANEL
2	3-307-833-21	BUTTON, LOCK
3	3-310-908-00	KNOB, INDICATION, CONTROL
4	3-310-909-00	KNOB, ORNAMENTAL, CONTROL
5	3-310-947-00	SPRING, COMPRESSION
6	3-310-978-01	BUTTON, SELECTION, NR
7	3-310-979-01	BUTTON, SELECTION, TAPE
8	3-578-101-00	PLATE, ORNAMENTAL
9	3-578-109-00	CONTACT
10	3-578-114-00	PANEL, CHASSIS
11	3-578-115-00	LID, BATTERY CASE
12	3-578-232-00	(SILVER)...ORNAMENT, ADJUSTMENT HOLE
12	3-578-232-11	(RED).....ORNAMENT, ADJUSTMENT HOLE
12	3-578-232-21	(BLACK)....ORNAMENT, ADJUSTMENT HOLE
13	3-578-236-00	SPRING
14	3-831-441-XX	CUSHION
15	7-627-551-27	(SILVER).....SCREW, PRECISION +P 1.4X2.5
15	7-627-551-28	(RED,BLACK)...SCREW, PRECISION +P 1.4X2.5
16	7-627-552-47	SCREW, PRECISION +P 1.7X4
17	7-627-850-57	SCREW, PRECISION +P 1.4X3.5
18	9-911-816-01	CLOTH, DRAWER, BATTERY
19	9-911-838-XX	CUSHION, METER
20	X-3310-939-1	(SILVER)...PANEL ASSY, CASSETTE
20	X-3310-940-1	(BLACK)....PANEL ASSY, CASSETTE
20	X-3310-941-1	(RED).....PANEL ASSY, CASSETTE
21	X-3310-942-1	(SILVER)...PANEL ASSY, CONTROL
21	X-3310-943-1	(BLACK)....PANEL ASSY, CONTROL
21	X-3310-944-1	(RED).....PANEL ASSY, CONTROL

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
51	3-310-977-01	LABEL, MODEL NUMBER
52	3-310-980-01	CASE, CARRYING
53	3-310-986-01	INDIVIDUAL CARTON
54	3-318-522-11	LABEL, DOLBY
55	3-318-523-01	SPACER
56	3-318-524-01	CUSHION
57	3-701-308-00	(BLACK)....LABEL, PRODUCT COLOR
57	3-701-309-00	(SILVER)...LABEL, PRODUCT COLOR
57	3-701-311-00	(RED).....LABEL, PRODUCT COLOR
58	3-701-308-00	(BLACK)....LABEL, PRODUCT COLOR
58	3-701-311-00	(RED).....LABEL, PRODUCT COLOR
58	3-701-329-00	(SILVER)...LABEL, PRODUCT COLOR
59	3-701-622-00	(Canadian)...BAG, POLYETHYLENE
60	3-701-999-00	LABEL, SERIAL NUMBER
61	3-703-707-01	STICKER, SONY SYMBOL (21)
62	3-773-956-11	MANUAL, INSTRUCTION
63	3-773-956-41	(AEP)....MANUAL, INSTRUCTION
64	8-951-092-90	MDR-15L SET
65	X-3310-027-0	BELT ASSY, SHOULDER
66	3-570-631-61	BAG, POLYETHYLENE

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

MECHANISM SECTION

No.	Part No.	Description
301	3-305-509-00	LEVER (A), SHUTT-OFF
302	3-310-914-00	GEAR, FWD
303	3-310-915-11	GEAR (B), DRIVING
304	3-310-916-00	PLATE (B), HYSTERESIS
305	3-310-920-00	PLATE (C), HYSTERESIS
306	3-310-921-00	SPRING, COMPRESSION
307	3-310-930-00	PLATE, THRUST
308	3-310-935-00	LEVER, SWITCH
309	3-310-938-00	PLATE, SHIELD
310	3-310-939-00	RUBBER, VIBRATION PROOF
311	3-310-948-00	SPRING, TENSION
312	3-310-958-00	WASHER
313	3-310-959-00	SPRING, TENSION
314	3-310-971-01	HOOK, SPRING
315	3-545-588-00	SPRING, TENSION
316	3-547-625-00	SCREW, THRUST ADJUST
317	3-561-627-00	SPRING, TENSION
318	3-578-121-00	SPRING, COMPRESSION
319	3-578-123-00	SPRING, COMPRESSION
320	3-578-124-00	SPRING, COMPRESSION
321	3-578-126-00	SPRING, TENSION
322	3-578-127-00	SPRING, COMPRESSION
323	3-578-128-00	SPRING, COMPRESSION
324	3-578-130-00	SPRING
325	3-578-138-01	SEAM
326	3-578-138-11	SEAM
327	3-578-141-00	SPRING
328	3-578-146-00	SPRING
329	*3-578-149-00	SHAFT, LEVER (A), SHUT-OFF
330	3-578-151-00	SHAFT, GEAR, FWD
331	3-578-154-00	LEVER, DETECTION
332	3-578-157-00	LEVER (B), SHUT-OFF
333	3-578-158-00	GEAR, S
334	3-578-162-00	GEAR, REW
335	3-578-178-00	GEAR, SHUT-OFF
336	3-578-181-00	SPRING
337	3-578-183-00	LEVER, RETURN, S
338	*3-578-196-00	HOOK, SPRING
339	3-578-199-00	SPRING, COMPRESSION
340	3-578-214-00	SHAFT, GEAR, SHUT-OFF
341	3-578-220-00	SPRING, TENSION
342	3-578-221-00	SPRING, COMPRESSION
343	3-578-224-00	WASHER
344	3-578-224-11	WASHER
345	3-578-244-01	GEAR, FF

MECHANISM SECTION

No.	Part No.	Description
346	3-578-249-00	SPRING, COMPRESSION (FWD BUTTON)
347	3-578-254-00	RING, RETAINING, E1.2
348	3-578-265-00	WASHER
349	3-578-267-00	SCREW (+P1.4X1.6), PRECISION
350	3-578-276-11	WASHER
351	3-578-277-00	SPRING, TENSION
352	3-578-278-00	SPRING, COMPRESSION
353	3-701-438-01	WASHER
354	7-624-102-04	STOP RING 1.5, TYPE -E
355	7-627-451-87	SCREW, PRECISION +K 1.4X2.2
356	7-627-551-28	SCREW, PRECISION +P 1.4X2.5
357	7-627-553-37	SCREW, PRECISION +P 2X3
358	7-627-553-98	SCREW, PRECISION +P 2X8
359	7-627-554-17	SCREW, PRECISION +P 2X3.5
360	7-627-850-18	SCREW, PRECISION +P 1.4X2.5
361	7-627-850-48	+P 1.4X1.6
362	7-627-850-78	PRECISION SCREW +P 1.4X1.8
363	7-627-851-17	SCREW, PRECISION +P 1.4X4.5
364	7-627-851-27	SCREW, PRECISION +P 1.4X5
365	7-671-112-01	STEEL BALL
366	X-3305-419-0	LEVER ASSY, FWD
367	X-3310-905-0	ROTOR ASSY
368	X-3310-907-0	STATOR ASSY
369	X-3310-908-0	HOLDER ASSY
370	*X-3310-909-0	CHASSIS ASSY, SUB
371	X-3310-910-0	CHASSIS ASSY
372	X-3310-921-0	BUTTON ASSY, PLAY
373	X-3310-932-1	BRACKET ASSY, MOTOR
374	X-3310-935-1	COVER ASSY, ERASE HEAD
375	X-3310-936-1	BRACKET ASSY, PANEL
376	*X-3578-105-0	CHASSIS ASSY, HEAD
377	X-3578-107-0	BUTTON ASSY, STOP
378	X-3578-108-0	BUTTON ASSY, FR
379	X-3578-114-0	PLATE ASSY, LOCK
380	X-3578-115-0	CLAW ASSY, REEL
381	X-3578-121-0	LEVER ASSY, FWD
382	X-3578-126-0	CLAW ASSY, REEL
383	X-3578-132-0	LEVER (A) ASSY, DRIVING
384	X-3578-137-0	PINCH ROLLER ASSY

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
501	*1-535-511-11	FRAME, LEAD (F TYPE)		
502	*A-3015-288-A	MOUNTED PCB, MAIN		
C101	1-163-008-00	CERAMIC CHIP 820PF	10%	50V
C102	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C103	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C104	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C105	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C106	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C107	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C108	1-135-087-21	TANTAL. CHIP 0.68MF	10%	20V
C109	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C110	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C111	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C112	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C113	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C114	1-123-827-00	ELECT 220MF	20%	4V
C201	1-163-008-00	CERAMIC CHIP 820PF	10%	50V
C202	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C203	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C204	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C205	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C206	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C207	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C208	1-135-087-21	TANTAL. CHIP 0.68MF	10%	20V
C209	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C210	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C211	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C212	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C213	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C214	1-123-827-00	ELECT 220MF	20%	4V
C301	1-124-220-00	ELECT 33MF	20%	4V
C302	1-123-827-00	ELECT 220MF	20%	4V
C303	1-135-066-21	TANTAL. CHIP 22MF	20%	4V
C304	1-124-220-00	ELECT 33MF	20%	4V
C305	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C306	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C307	1-135-066-21	TANTAL. CHIP 22MF	20%	4V
C308	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C309	1-123-827-00	ELECT 220MF	20%	4V
C310	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C311	1-123-827-00	ELECT 220MF	20%	4V
C312	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C313	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C601	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C602	1-135-070-00	TANTAL. CHIP 0.1MF	20%	35V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C603	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C604	1-135-070-00	TANTAL. CHIP 0.1MF	20%	35V
C605	1-163-012-00	CERAMIC CHIP 0.0018MF	10%	50V
C606	1-130-483-00	MYLAR 0.01MF	5%	50V
C607	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C609	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C610	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
C611	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C612	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C613	1-130-489-00	MYLAR 0.033MF	5%	50V
CN301	1-507-723-00	JACK, EXTENTION POWER (DC IN 3V)		
D301	8-719-104-37	DIODE SR506D		
D302	8-719-100-05	DIODE 1S2837		
HP901	8-825-507-80	HEAD (PP227-3602F)		
IC301	8-759-910-18	IC BA3304F		
IC302	8-759-908-08	IC CX20085		
IC303	8-759-200-95	IC TA7688F		
IC601	8-759-909-45	IC CX20084		
J301	1-507-727-00	JACK 2P (HEADPHONES)		
JR301	1-216-296-00	METAL CHIP 0	5%	1/8W
JR302	1-216-295-00	METAL CHIP 0	5%	1/10W
JR303	1-216-296-00	METAL CHIP 0	5%	1/8W
JR304	1-216-295-00	METAL CHIP 0	5%	1/10W
JR305	1-216-295-00	METAL CHIP 0	5%	1/10W
JR306	1-216-296-00	METAL CHIP 0	5%	1/8W
JR307	1-216-296-00	METAL CHIP 0	5%	1/8W
JR308	1-216-296-00	METAL CHIP 0	5%	1/8W
JR309	1-216-296-00	METAL CHIP 0	5%	1/8W
JR310	1-216-296-00	METAL CHIP 0	5%	1/8W
JR311	1-216-296-00	METAL CHIP 0	5%	1/8W
JR312	1-216-295-00	METAL CHIP 0	5%	1/10W
JR313	1-216-296-00	METAL CHIP 0	5%	1/8W
M901	X-3310-922-1	MOTOR ASSY (MNF-1600G)		
Q101	8-729-100-67	TRANSISTOR 2SC1623-L7		
Q201	8-729-100-67	TRANSISTOR 2SC1623-L7		
Q301	8-729-100-76	TRANSISTOR 2SA812-M6		
Q302	8-729-100-67	TRANSISTOR 2SC1623-L7		
Q303	8-729-100-76	TRANSISTOR 2SA812-M6		
Q304	8-729-100-67	TRANSISTOR 2SC1623-L7		
Q305	8-729-100-67	TRANSISTOR 2SC1623-L7		
Q306	8-729-100-76	TRANSISTOR 2SA812-M6		
Q601	8-729-101-07	TRANSISTOR 2SB798-DL		

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R101	1-216-089-00	METAL CHIP	47K	5%	1/10W
R102	1-216-087-00	METAL CHIP	39K	5%	1/10W
R103	1-216-085-00	METAL CHIP	33K	5%	1/10W
R104	1-216-118-00	METAL CHIP	750K	5%	1/10W
R105	1-216-089-00	METAL CHIP	47K	5%	1/10W
R106	1-216-073-00	METAL CHIP	10K	5%	1/10W
R107	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R108	1-216-099-00	METAL CHIP	120K	5%	1/10W
R109	1-216-075-00	METAL CHIP	12K	5%	1/10W
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R112	1-216-140-00	METAL CHIP	3.9	5%	1/8W
R113	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R114	1-216-037-00	METAL CHIP	330	5%	1/10W
R115	1-216-198-00	METAL CHIP	1K	5%	1/8W
R116	1-216-049-00	METAL CHIP	1K	5%	1/10W
R117	1-216-025-00	METAL CHIP	100	5%	1/10W
R201	1-216-089-00	METAL CHIP	47K	5%	1/10W
R202	1-216-087-00	METAL CHIP	39K	5%	1/10W
R203	1-216-085-00	METAL CHIP	33K	5%	1/10W
R204	1-216-118-00	METAL CHIP	750K	5%	1/10W
R205	1-216-089-00	METAL CHIP	47K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R208	1-216-099-00	METAL CHIP	120K	5%	1/10W
R209	1-216-075-00	METAL CHIP	12K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R212	1-216-140-00	METAL CHIP	3.9	5%	1/8W
R213	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R214	1-216-037-00	METAL CHIP	330	5%	1/10W
R215	1-216-049-00	METAL CHIP	1K	5%	1/10W
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W
R217	1-216-025-00	METAL CHIP	100	5%	1/10W
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-081-00	METAL CHIP	22K	5%	1/10W
R303	1-216-085-00	METAL CHIP	33K	5%	1/10W
R304	1-216-089-00	METAL CHIP	47K	5%	1/10W
R305	1-216-081-00	METAL CHIP	22K	5%	1/10W
R306	1-216-037-00	METAL CHIP	330	5%	1/10W
R307	1-216-186-00	METAL CHIP	330	5%	1/8W
R308	1-216-056-00	METAL CHIP	2K	5%	1/10W
R309	1-216-089-00	METAL CHIP	47K	5%	1/10W
R310	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R311	1-216-097-00	METAL CHIP	100K	5%	1/10W
R312	1-216-129-00	METAL CHIP	2.2M	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R217	1-216-025-00	METAL CHIP	100	5%	1/10W
R601	1-216-105-00	METAL CHIP	220K	5%	1/10W
R602	1-216-058-00	METAL CHIP	2.4K	5%	1/10W
R603	1-216-093-00	METAL CHIP	68K	5%	1/10W
R604	1-216-093-00	METAL CHIP	68K	5%	1/10W
R605	1-216-097-00	METAL CHIP	100K	5%	1/10W
R606	1-216-101-00	METAL CHIP	150K	5%	1/10W
R607	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R608	1-216-073-00	METAL CHIP	10K	5%	1/10W
RV101	1-226-763-00	RES, ADJ, METAL GLAZE 4.7K			
RV201	1-226-763-00	RES, ADJ, METAL GLAZE 4.7K			
RV301	1-228-598-00	RES, VAR, CARBON 10K/10K			
RV601	1-226-490-00	RES, ADJ, METAL GLAZE 20K			
S301	1-553-280-00	SWITCH, SLIDE (TAPE)			
S302	1-554-585-00	SWITCH, SLIDE (M-N)(DOLBY NR)			
S901	1-553-226-00	SWITCH, LEAF, POWER			

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:µF, PF:µµF.

COILS

- MMH : mH, UH : µH

SEMICONDUCTORS

In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC, UPD···: µPD···

© 1984